Directory Services and Interoperability

A short chronicle of FAIL! :-)

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Directory Services

Centralize:
management of users
management of machines
control of security settings
configuration management
Windows – Active Directory

Good LDAP/Kerberos integration

Excellent support for Windows machines

Support for Linux/Unix machines

Good configuration management for Windows machines (Group Policies)
Linux / Unix

Good LDAP and Kerberos implementations but integration left to end-users *

Good support for Linux / Unix machines

**No** real support for Windows clients

No integrated configuration management but there are excellent solutions like Puppet

*FreeIPA is Red Hat attempt to fix this*
Problems

Ownership of the Directory/Data
Semantics mismatches between OSs.
Custom Extensions/Data
Configuration management for different OSs.
What is FreeIPA?

IPA – Identity, Policy, Audit

FreeIPA is an integrated security information management solution combining 389 DS, MIT Kerberos, NTP, ISC Bind. It is managed through a web interface and command line tools.
What is FreeIPA?

Currently supports users and credentials synchronization with AD domains through the DS winsync/passsync plugins.

Samba Integration is the next target.
Integration Strategies

Users replicated between AD and other LDAP

Samba4 on top of your LDAP Server

Trust relationship between AD and integrated LDAP/Kerberos/Samba solution
Replicating identities

Synchronization issues:
- out of sync trees
- conflicts
- single point of failure

Groups?
- I want my own!
- Nested Groups?
- Foreign Groups?

Authentication?
- password synchronization
- no Single-Sign-On
Samba-AD on pre-existing Directory
Trust relationship diagram

1. User authentication on REALM.A
2. Ticket request to KDC of REALM.A
3. Ticket acceptance by CIFS/SRV of REALM.B
4. Ticket validation by KDC of REALM.B
5. Ticket presentation for access to REALM.B resources

Users and services on different realms are connected through trust relationships, ensuring secure access across realms.
What kind of trust?

Simple AD-MIT Kerberos trust

Full External/Forest level trust
Required protocols for full AD trust

- DNS
- KRB5 (+MS-PAC)
- NETLOGON
- LSARPC
- CLDAP(?)
What would it look like?

DNS

LDAP

KDC

SAMBA

Users/Machines/Trust Credentials

PAC Generation/Validation

DATA

DNS Updates

NETLOGON / LSA

AD
Problems?

Foreign domain users/groups

Custom groups to manage foreign users

PAC for Unix/Linux users that want to access Windows Resources
Questions?